



# ELECTRICAL CURRENTS

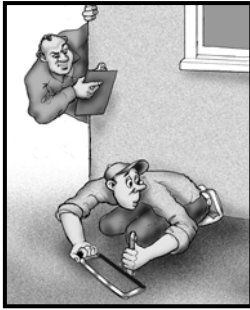
Newsletter from the Office of the Chief Electrical Inspector

Ron Fuller, Chief Electrical Inspector

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## ● Compromising A Grounding Electrode System Is A Gross Violation



A properly installed grounding electrode is the foundation of a safe electrical system. The National Electrical Code is very specific on the electrodes that are permitted for grounding and have dedicated an extensive article to the materials, sizing and installation requirements of grounding and bonding; NEC Article 250.

This issue has been addressed several times in past newsletters yet the department continues to issue an alarming amount of citations for cut off ground rods. In each case the installer, company and administrator have been held accountable. This offense is considered a gross violation and is subject to a double penalty and possible suspension or revocation of licensing and/or certification.

NEC 250.53(G) requires that rod and pipe electrodes *"be installed such that at least 2.44 m (8 ft) of length is in contact with the soil. It shall be driven to a depth of not less than 2.44 m (8 ft) except that, where rock bottom is encountered, the electrode shall be driven at an oblique angle not to exceed 45 degrees from the vertical or, where rock bottom is encountered at an angle up to 45 degrees, the electrode shall be permitted to be buried in a trench that is at least 750 mm (30 in.) deep. The upper end of the electrode shall be flush with or below ground level unless the aboveground end and the grounding electrode conductor attachment are protected against physical damage as specified in 250.10."*

If ground rods cannot be driven the full distance then one of the other methods described in NEC 250.53(G) must be followed, or the installer can change the type of grounding electrode they are installing. In some cases it may be beneficial to install plate electrodes instead of ground rods. Plate electrodes must meet the requirements of 250.52(A)(6) and 250.53(H) when used as a grounding electrode. (Illustration is courtesy of Code Check.)

## ● Opportunity To "Grandfather" Specialty Electrical And Specialty Plumber Certification For Those In The Pump Installation Business

The Washington State Ground Water Association was the primary proponent of a successful bill (SSB 6225) during the 2006 legislative session. The industry remains regulated by Contractor Registration laws (RCW 18.27), Electrical Installations laws (RCW 19.28), and Plumber Certification laws (RCW 18.106) but the bill has consolidated and streamlined many of the requirements for the contractors and workers performing these installations.

Labor and Industries' Plumbing and Electrical Sections are creating a combined General Contractor and Electrical Contractor Specialty Licensing/Registration document that will enable those in the Domestic Pump or Pump and Irrigation systems business to perform this work under a single license, bond and insurance coverage, and license renewal.

Worker certification (**both** plumbing and electrical) is now required for all pump installation work on domestic water systems and irrigation water systems. The department can no longer allow placement of an electric pump motor in a well without proper worker electrical certification, nor does the new law allow the installation of associated domestic or irrigation water piping without proper worker specialty plumbing certification. If you have the qualifying experience detailed in the law, and you submit the appropriate documentation of your experience and the applicable fees to the department **prior to January 1, 2007, you can "grandfather" and receive the necessary certification without examination.**

**What is the qualifying experience for the new specialty plumber certification?** The new law (RCW 18.106.050(3)) says that individuals must *"provide evidence to the department prior to January 1, 2007, that they have been employed in the pump and irrigation business as defined by RCW 18.106.010(10)(c) for not less than four thousand hours in the most recent four calendar years"* in order to qualify the specialty plumbing certification without examination. You must have been employed by a registered general or specialty contractor defined by chapter 18.27 RCW or an appropriately licensed electrical contractor defined by chapter 19.28 RCW.

**What is the qualifying experience for specialty electrician certification?** The law (RCW 19.28.191(1)(g)(iv)) states “Individuals who are able to provide evidence to the department, **prior to January 1, 2007**, that they have been employed as a pump installer in the pump and irrigation or domestic pump business by an appropriately licensed electrical contractor, registered general contractor defined by chapter 18.27 RCW, or appropriate general specialty contractor defined by chapter 18.27 RCW **for not less than eight thousand hours in the most recent six calendar years** shall be issued the appropriate certificate by the department upon receiving such documentation and applicable fees.” Nearly identical language for qualifying for specialty administrator certification is in RCW 19.28.051.

Appropriate experience for the 03A-Domestic Pump specialty will be established with the specific Affidavit of Experience that is part of the “grandfathering” application package. For claims of installation experience in the 03-Pump and Irrigation specialty, additional documentation must be attached to the Affidavit of Experience proving appropriate hours of experience installing equipment unique to the (03) scope. This documentation can include copies of previous electrical permits, contracts, work orders, invoices, or other proof of installing large 3-phase pumps and control equipment and/or over 7½-horsepower, single-phase pumping systems during the qualification time period allowed by the law.

Combination plumbing-electrical licensing and certification will only be created for those exclusively in the 03-pump and irrigation or 03A-domestic pump specialties that are doing pump installations. The law does not prohibit individuals with broader scope plumbing or electrical certification from being able to “grandfather” the corresponding other trade’s certification necessary for doing a complete pump installation. The law only intends the combination contractor license/registration or combination pump installer plumbing/electrical certification to be available to those working exclusively in the pump installation business.

**Is there additional information available?** Yes. Applications for the pump installer combination contractor license/registration, “grandfathered” pump installer specialty plumbing and/or electrical certification, and pump installer trainee certification will be available in late July on the Forms and Publications links on the L&I Contractor Registration, Plumbing, and Electrical Web pages at: <http://www.lni.wa.gov/TradesLicensing/>.

## ● Class B Inspection Labels Update

During the last six months the department has seen a **significant increase** in the proper use of Class B labels. Effective November 25, 2005 the scope of Class B increased along with the sale of the labels. Almost immediately it was identified that the labels were being used for work that was not in the scope of Class B. Several newsletter articles were written on the proper use of the labels in an attempt to educate the users and promote the use. The result has been a reduction in the misuse of the labels.

The only issue that is still outstanding with the use of Class B labels is the readability of the label that is filled out by the installer. In most cases the label is illegible because it was filled out with a worn out permanent marker causing wide lines and merging of words. When this happens the contractor must be contacted and the proper information must be obtained and entered in the electrical permits database. This takes many hours and wastes time for department staff and the contractor.

Please fill out Class B labels with a pen that is compatible with the space available on the labels and avoid smearing of the writing. PRINT carefully and legibly so the information will be clear to anyone that needs to read it. Pass this information on to all your electricians that are filling out the labels on the jobsite. The creation of these labels has been a huge benefit to customers, contractors, and the department. Let’s continue to use them properly so we can all continue to save time and money.

## ● Correction In The Printed (May 1, 2006 – Green Cover) WAC 296-46B.

The correct fee for a swimming pool inspected separately (WAC 296-46B-905(1)(a)(v)) is \$73.00 not \$48.12 as printed. The fee is correct in the online permit purchasing software.

## ● Electrical Question of the Month

**This Month’s Question:** A conductor type letter or letters used alone shall indicate a single conductor. What is the identifying letter suffix that indicates two insulated conductors laid parallel within an outer nonmetallic covering? **A) B, B) D, C) R, D) M.**

**Last Month’s Question:** Space heating cables with orange leads indicate a circuit voltage rating requirement of \_\_\_\_ volts, nominal. **A) 120, B) 240, C) 277, D) 480.** The answer is **D.** [NEC 424.35]